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CLAIMS

1. An arrangement comprising:
 - gas discharge lamp means having lamp terminals;
 - a DC voltage provided at a set of DC output terminals;
 - inverter means connected with the DC output terminals and operative to provide a high-frequency output current from a set of high-frequency output terminals; the high-frequency output current having a fundamental period; the inverter means including a transistor operative to conduct current in response to a control voltage provided at a control input; and
 - L-C means connected in circuit between the high-frequency output terminals and the lamp terminals; the L-C means being operative by way of resonant action to cause a substantially sinusoidal high-frequency voltage to be present across the tank-capacitor; the fundamental frequency of this high-frequency voltage being the same as that of the high-frequency current;
 - the combination being so arranged as to cause the transistor to conduct current for a brief span of time once during each fundamental period; the duration of said brief span of time being manifestly shorter than half the duration of said fundamental period.
2. The arrangement of claim 1 wherein the inverter is arranged to be self-oscillating by way of positive feedback means connected between the high-frequency output terminals and the control input.
3. The arrangement of claim 2 additionally comprising means operative to permit adjustment of the duration of said brief span of time.
4. The arrangement of claim 2 additionally comprising means operative to cause the duration of said brief span of time to automatically change in inverse relationship to the magnitude of the high-frequency output current.
5. The arrangement of claim 1 additionally comprising rectifier means having AC input terminals operable to connect with the AC voltage of an ordinary electric utility power line and to provide said DC voltage when so connected.
6. The arrangement of claim 5 additionally comprising means operative to provide for electrical conduction between the DC output terminals and the AC input terminals.

7. The arrangement of claim 5 additionally comprising base means operable to screw into an ordinary Edison-type lamp socket, thereby to obtain said AC voltage.

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8. The arrangement of claim 7 wherein the base means is also operable to support and hold together the gas discharge lamp means, the DC output terminals, the inverter means, the L-C means and the rectifier means, thereby to form an integral self-ballasted screw-in gas discharge lamp.

9. An arrangement comprising:

a gas discharge lamp having lamp terminals;

a rectifier means having AC input terminals and, when provided with an appropriate AC voltage at its AC input terminals, being operative to provide an appropriate DC voltage as a set of DC output terminals; the appropriate AC voltage having a magnitude about equal to that of the voltage on an ordinary electric utility power line;

frequency-converting ballast means having DC input terminals and high-frequency output terminals; the DC input terminals being connected with the DC output terminals; the high-frequency output terminals being: (i) connected with the lamp terminals; and (ii) operative, when provided with said appropriate DC voltage at its DC input terminals, to provide a high-frequency operating voltage to the lamp terminals, thereby to cause the lamp to emit light; and

screw-base means having base electrodes electrically connected with the AC input terminals; the screw-base means being operative to hold together the gas discharge lamp, the rectifier, and the frequency-converting ballast means such as to form an integral screw-in self-ballasted gas discharge lamp unit operative: (i) to be screwed into an ordinary Edison-type lamp socket having socket electrodes, thereby to cause electrical connection between the base electrodes and the socket electrodes; and (ii) to be properly powered by the AC voltage provided at the socket electrodes from an ordinary electric utility power line;

the arrangement being so constituted that direct electrical conduction may take place between the base electrodes and the DC output terminals, thereby to obtain the appropriate DC voltage without the need for interposing a power transformer in circuit between the base electrodes and the DC output terminals.

10. An arrangement comprising:

base means adapted to screw into and to be supported by an ordinary Edison-type lamp socket; the lamp socket having socket electrodes whereat an AC voltage is provided; the base means having base electrodes making electrical contact with the socket electrodes whenever in fact the base means is screwed into said lamp socket;

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rectifier means electrically connected with the base electrodes and operable to provide a DC voltage at a set of DC output terminals; there being an electrical conduction path between the base electrodes and the DC terminals;

gas discharge lamp means having a set of lamp terminals; and

inverter-type ballast means having a DC input and a high-frequency output; the DC input being connected in circuit between the DC output terminals and the lamp terminals;

the arrangement being so constructed as to constitute an integral self-ballasted gas discharge lamp unit operable to be screwed into and supported by said ordinary Edison-type lamp socket, thereby to be properly powered by a power line voltage provided thereat.

11. The arrangement of claim 10 wherein the gas discharge lamp means is a folded fluorescent lamp; the folded fluorescent lamp having a shape similar to that of a letter U.

12. An arrangement comprising:

base means adapted to screw into and to be supported by an ordinary Edison-type lamp socket; the lamp socket having socket electrodes whereat an AC voltage is provided; the base means having base electrodes making electrical contact with the socket electrodes whenever in fact the base means is screwed into said lamp socket;

frequency-converting ballast means electrically connected with the base electrodes and operable to provide an alternating current at a set of output terminals; and

gas discharge lamp means having a set of lamp terminals connected with the output terminals; the gas discharge lamp means being characterized by having two substantially parallel columns of gas; which two columns of gas are connected with one another by way of a substantially transverse-oriented column of gas;

the arrangement being so constructed as to constitute an integral self-ballasted gas discharge lamp unit operable to be screwed into, supported by, as well as properly powered from said ordinary Edison-type lamp socket.

13. The arrangement of claim 12 wherein: (i) the two columns of gas each has a first cross-sectional area; and (ii) the transverse-oriented column of gas has a second cross-sectional area, the second cross-sectional area being substantially smaller than the first cross-sectional area.

14. The arrangement of claim 12 wherein the fundamental frequency of the alternating current is substantially higher than that of the AC voltage.

15. An arrangement comprising:

an AC source operative to provide an alternating current at a set of AC terminals; and

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gas discharge lamp means having lamp terminals connected with the AC terminals, thereby to be properly powered by the alternating current provided hereat; the gas discharge lamp means being characterized by having two substantially parallel columns of gas, each column having a first cross-sectional area; the two columns of gas being connected with one another by way of a substantially transverse-oriented column of gas, the transverse-oriented column of gas having a second cross-sectional area; the second cross-sectional area being substantially smaller than the first cross-sectional area.

16. The arrangement of claim 15 additionally comprising screw base means having base electrodes operative to make electrical contact with socket electrodes in a lamp socket; the base electrodes being connected in circuit with the AC source.

17. The arrangement of claim 15 wherein each of the two columns of gas has a maximum cross-sectional dimension and a length; the length being substantially larger than the maximum cross-sectional dimension.

18. The arrangement of claim 17 wherein the gas discharge lamp means comprises a fluorescent lamp.

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